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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: :  
CHARLES D. JAQUAYS : Group Art Unit: 1755  
For: Building and Other Materials : Examiner: Marcantoni, Paul D.  
Containing Treated Bauxite Tailings :  
and Process for Making Same :  
Serial No. 10/690,729 :  
Filed: 10/23/2003 :

RESPONSE

In response to the office action of February 11, 2005, reconsideration of this application is requested.

In the office action, claims 1-28 are rejected alternatively under 35 USC 102 as anticipated by or under 35 USC 103 as obvious over U.S. patent no. 5,554,352 to Jaques et al., U.S. patent no. 3,985,567 to Iwu or U.S. patent no. 4,353,749 to Ray et al. These grounds of rejection are traversed.

Applicant's invention, as presently defined in the claims, is directed to a process for treating waste streams containing bauxite tailings with an acid to neutralize alkali metal hydroxides present to obtain a purified product that can be incorporated into building or other materials to enhance their properties.

Claims 1-9 and 16-20 are directed to a process for treating bauxite tailings, claims 21-28 are directed to a process for forming a cementitious material containing bauxite tailings and claims 10-15 are directed to a structural building material containing treated bauxite tailings in accordance with the present invention.

None of the cited references disclose or suggest applicant's invention, either taken alone or collectively. In fact, as noted below, the three cited references themselves are directed to such disparate objectives and procedures as to make implausible any combination of their respective teachings to one of ordinary skill in the art, nor would any such combination of teachings in any event, suggest applicant's invention.

U.S. patent no. 5,554,352 to Jaques et al. describes digesting "silica ore" to produce a purified pozzolan material having an amorphous structure. The patent suggests this improved amorphous pozzolan has utility in concrete and is superior to crystalline pozzolans. Interestingly, the described process of Jaques et al. involves an acid digestion of silica ore, not a neutralization of alkaline values, as in applicant's invention, and nowhere even mentions pH. In fact, at col.2, lines 40-41, the patent describes that the amorphous pozzolan product is precipitated out by cooling alone. Additionally, there is nothing in the patent to suggest that the amorphous silica product therein produced is anything like the purified product of applicant's invention.

U.S. patent no. 4,353,749 to Ray et al. describes a process for treating both acid and alkaline waste materials by blending the two together to achieve a "mixture having a pH of about 7.0 to 10" (col. 2, lines 26-27) that can be used as "soil cement." The patent is not remotely concerned with either the silica purification of Jaques et al. or applicant's acid neutralization and separation. Ray et al. does not employ a mineral acid (or any acid), and the pH range of Ray et al. (7-10) is outside applicant's claimed range of 5.5 to 6.

Further, the product of Ray et al. is unlike that of applicant's invention. Ray et al. produces a low compressive strength (100-400 psi) material with limited utility and with no opportunity to reclaim valuable by-products.

U.S. patent no. 3,985,567 to Iwu is directed to a process for selectively abstracting into solution from red mud sodium, without removing the chlorides of other metals (iron, titanium, silicon and aluminum), as described at col. 1, lines 23-27. As further described at the top of column 2 of the Iwu patent, the residue left after extraction is mixed with kaolinitic clay and then air dried. Nowhere does the patent suggest using the treated residue in a cementitious product, such as in brick. Further, Iwu specifically requires (at col. 1, lines 35-38) that initially the bauxite red mud be dried at 115° C and then heated in water before being titrated.

Applicant's invention, as defined in the claims, therefore differs from Iwu in a number of important aspects.

Most significantly, applicant's invention does not involve the use of clay or require firing in a kiln. Applicant's invention therefore avoids the time consuming procedure of air-drying for a day, then baking at 150° C for three days. Applicant produces a highly useful cementitious product.

The cementitious product of applicant and the kaolinitic product (and process) of Iwu are quite different. The hydraulic properties of Iwu's treated bauxite tailings combined with kaolinitic clay do not allow the mixture to dry uniformly, absent a flocculant, resulting in visible cracks and microfractures in the resulting product. These defects are not found in applicant's invention. Further, as noted, Iwu's process requires additional preliminary procedures, such as drying and heating in aqueous solution not required by applicant.


It must again be emphasized that the three references relied on in the rejection all relate to widely differing objectives and procedures. It is, therefore, not sustainable that their disparate teachings would be obviously and selectively combined under 35 USC 103 to arrive at applicant's invention.

Further, however, none of the cited references describe applicant's claimed invention within the meaning of 35 USC 102.

Accordingly, the respective grounds of rejection, upon reconsideration, should be withdrawn.

It is noted of interest that the examiner had previously concluded applicant's claims 1-28 meet the criteria set out in PCT Article 33(2) and 33(3) for novelty, inventive step and industrial applicability when considering Iwu and Jaques et al. See the International Preliminary Examination Report of January 10, 2003 in corresponding PCT application no. PCT/US02/12490 where the examiner had considered Iwu and Jaques et al. and stated "Claims 1-28 meet the criteria set out in PCT Article 33(2) and 33(3) because the prior art does not teach or fairly suggest each and every aspect or element of the invention. It meets the requirements for novelty. Further, it would not be obvious to modify the prior art to arrive at the claimed invention and thus meets the requirements for inventive step. Claims 1-28 also meet the criteria for industrial applicability under PCT Article 33(4) because the waste is used to make a building material." It is troubling that applicant cannot reasonably rely on consistency by the same examiner in deciding whether to file national applications in the U.S. and other countries with the considerable expense that requires.

Respectfully submitted,



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If this correspondence is not received before the application is considered to be abandoned, please consider this as a petition to revive the abandoned application.

A handwritten signature in cursive script, appearing to read "Donald A. Kettlestrings".

Donald A. Kettlestrings

A handwritten date "4/21/05" in cursive script.

Date